

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: HEDMAN et al.

Serial No.: 10/014,727

Filed: December 10, 2001

Title: METHOD OF KILLING ORGANISMS
AND REMOVAL OF TOXINS IN
ENCLOSURES

Art Unit: 3644

Examiner: Xavier, Valentina

Confirmation No.: 6900

REPLY TO EXAMINER'S ANSWER TO THE APPEAL BRIEF

Commissioner for Patents
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Madam:

This Reply Brief is filed pursuant to 37 C.F.R. § 41.41 in response to the Examiner's Answer dated June 25, 2010.

REPLY BRIEF

The application describes a method for exterminating toxic organisms from an enclosed structure, comprising (i) heating a gas to a temperature that is lethal to toxic organisms, (ii) directed the heated gas into an enclosed structure, (iii) monitoring the temperature of the enclosed structure using at least one temperature-sensitive probe, (iv) filtering the heated gas to remove particulate remains that are suspended in the heated gas, and (v) exhausting the heated gas (as filtered) from the enclosed structure. As discussed in the Appeal Brief, these steps are not disclosed in either Forbes, Brenner or Montellano.

On June 25, 2010, the Examiner provided her Answer. While the Answer responds to issues raised in Applicants' Appeal Brief, it fails to identify where certain features are disclosed in the prior art, and why it would have been obvious to combine a vacuum cleaner, as disclosed in Brenner and Montellano, with a heated-gas extermination system, as disclosed in Forbes. It is further clear from the Answer that the Examiner has failed to give proper weight to the evidence of record, including the four declarations submitted by the Applicants.

As stated in the Appeal Brief, the prior art is deficient in at least two respects: (1) it does not disclose monitoring the temperature of an enclosed structure using at least one temperature-sensitive probe; and (2) it does not disclose filtering the heated gas, wherein the heated gas (as filtered) is exhausted from the enclosed structure. As to the latter, the evidence of record further provides that it would not have been obvious to add a filtration system, as disclosed in Brenner and Montellano, to a heated-gas extermination system, as disclosed in Forbes. Details on these deficiencies are provided below:

TEMPERATURE-INDICATING DEVICE

Independent Claim 20 provides the steps of “disposing at least one temperature-indicating device within said enclosed structure” and “monitoring the temperature within said enclosure using said at least one temperature-indicating device ... to determine when said enclosed structure reaches a sufficiently high temperature for sanitizing said enclosed structure.” Similar features are disclosed in Claims 28, 29, 45-47 and 50-55 (e.g., disposing a temperature-sensitive probe inside the enclosed structure, communicating a signal from the temperature-sensitive probe to a console located outside the enclosed structure, etc.).

In the Answer, the Examiner states that “Forbes monitors temperature from inside the structure,” and that “[i]t would have been obvious to monitor the temperature from outside the structure to prevent overheating the treatment operators.” Answer at p. 5 (citing Forbes at col. 4, ll. 31-45). The Applicants respectfully disagree. While Forbes provides that there are temperatures that are lethal to certain insects (see col. 4, ll. 31-45), it does not “monitor[] temperature from inside the structure,” as the Examiner contends. The Examiner further states that “Forbes discloses in col. 4; lines 15 - 19 that the enclosure is heated until it reaches an ‘intended temperature,’ which indicates that there is a temperature monitoring probe to monitor when it reaches said intended temperature.” Answer at p. 7. Again, Applicants respectfully disagree.

Forbes **does not measure temperature**, but instead **estimates temperature** based on “thermal gradient.” See col. 4, ll. 46-50. Specifically, Forbes estimates an amount of time it would take to increase a structure’s temperature to a level that is lethal to insects. By way of example, Forbes states that termites cannot survive at 120 degrees F. (see col. 4, ll. 31-33), and that “a 4 x 4 wooden post at about 75 degrees F., exposed to convecting air at 160 degrees F. will heat the post to 120 degrees F. at its innermost point in about one hour” (see col. 4, ll. 51-63). Thus, Forbes estimates that it will take about one hour for air heated to 160 degrees F. to kill termites in a 4x4 wooden post. According to Forbes, such calculations are based on “thermal gradient.” See col. 4, ll. 46-47. Thus, Forbes does not disclose the use of a heat-sensitive probe, but the

use of “thermal gradients” to estimate an amount of time needed to raise a structure’s temperature to a level lethal to insects.

There is absolutely no disclosure in Forbes of a temperature-sensitive probe disposed inside an enclosed structure, communicating a temperature signal to a console outside the enclosed structure, or using the temperature signal to remotely monitor the temperature of the enclosed structure. For at least these reasons, the rejections of Claims 20, 28, 29, 45-47 and 50-55 should be withdrawn.

FILTERING THE HEATED GAS EXHAUSTED FROM THE ENCLOSURE

Claim 26 provides the steps of “filtering said heated gas from said enclosed structure ... to capture suspended remains of said toxic organisms,” and “exhausting said heated gas from said enclosed structure by applying a vacuum to said enclosed structure so as to draw the suspended remains out of said enclosure, wherein the suspended particulates are substantially removed from said heated gas before exhaustion from said enclosure.” Similar features are disclosed in Claims 18 and 20.

In the Answer, the Examiner admits that this feature is not disclosed in Forbes. See, e.g., p. 4 (“Forbes does not disclose filtering the heated gas from the enclosure for extracting heat killed organisms before the heated gas is released to an external environment.”). The Examiner then states, however, that this feature is disclosed in Brenner, and that “it would have been obvious to provide Forbes with an extraction step as shown by Brenner who filters the outflow for the purpose of removing dead organisms before the outflow is released to an external environment.” Answer at p. 4. The Applicants respectfully disagree.

The steps of “filtering said heated gas ... to capture suspended remains of said toxic organisms” and “exhausting said heated gas from said enclosed structure ... wherein the suspended particulates are substantially removed from said heated gas before exhaustion from said enclosure” are not disclosed in Brenner. Brenner provides a hand-held vacuum cleaner that includes a plurality of filters. See, e.g., Fig. 1. While Brenner states that the vacuum cleaner can be used capture live insects (see, e.g., col.

2, ll. 61-63), it is not used to capture “suspended remains of toxic organisms,” and it certainly does not exhaust heated gas from an enclosure “wherein the suspended particulates are substantially removed from said heated gas before exhaustion from said enclosure.” See Claim 26.

The hand-held vacuum cleaner in Brenner is used to capture live insects, not dead insects. Thus, the vacuum cleaner is not being used to capture “suspended remains of said toxic organisms.” Further, while the vacuum cleaner includes a plurality of filters, the filtered air is not being exhausted “from said enclosed structure.” See Claim 26. Instead, it is being exhausted **back into the enclosed structure**. See, e.g., col. 9, ll. 49-53 (“venting most of the exhaust air into the immediate environment”).

While such a distinction may seem minor, it is actually quite important. In a vacuum cleaner, two steps are being performed: (1) particulates (or in this case live insects) are being captured; and (2) air is being exhausted into the immediate environment. Thus, the air must be filtered, or the live insects would be blown back into the room from which they were removed. In the invention, however, live insects are not being captured, and air (or heated gas) is not being exhausted into the immediate environment. Instead, the heated gas is being exhausted “from said enclosed structure,” or outside of the enclosed structure. Thus, there is no obvious need to filter the air before it is exhausted. This is supported by Forbes, which does not disclose the use of a filter. In fact, Forbes states that its system “permit[s] hot air to leak away” (see col. 4, ll. 8-12), and that “clean up after the process is unnecessary” (see col. 1, ll. 35-42).

The nonobvious nature of adding a filter to the Forbes system is further supported by the Declaration of Michael Geyer, who is a Professional Engineer, a Board-Certified Industrial Hygienist and a Board-Certified Safety Professional. Mr. Geyer testified that “it would not have been obvious to modify a simple thermal eradication process using forced convection, as disclosed by the Forbes patent, to add an equivalent level of filtration of heated air.” Appeal Brief, Appendix D, Exhibit 1 at ¶ 2. He further testified that the results of “combined heat-tolerant air filtration with active

venting” were “unexpected,” and that “[o]ne of ordinary skill would not have considered the possibility or benefits of air filtration, because air filtration was not practiced for any reason in typical pest eradication activities performed prior to 1995.” *Id.* at ¶ 9.

In discussing this Declaration, the Examiner makes several comments (e.g., that the “showing is not commensurate in scope with the claims,” etc.) (Answer at p. 8), but does not address testimony on why it would not have been obvious to add a filter to the Forbes system. The Examiner merely states that “when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.” Answer at p. 9. This begs the question, what evidence of obviousness is the Examiner referring to?

In both the final Office Action and the Answer, the Examiner has failed to provide **any reason** as to why one skilled in the art would have combined a filter from a vacuum cleaner with the Forbes system, or why one would have been motivated to filter heated air that, according to Forbes, was “permit[ted] ... to leak away.” Col. 4, ll. 8-12. The Examiner has not provided **any rational** as to why one would go to the expense of filtering air that is merely being released into the atmosphere, or external to the enclosed structure.

In determining obviousness, the question is “whether the improvement is more than the predictable use of prior art elements according to their established function.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007). It is not sufficient to merely show that each element was known in the prior art. *See id.* at 418 (“a patent composed of several elements is not provided obvious merely by demonstrating that each of its elements was, independently, known in the prior art”). As Mr. Geyer explained, it would not have been predictable to add a filter to the Forbes system because “[t]here was no recognized need for continuous air filtration during heat treatment.” Appeal Brief, Appendix D, Exhibit 1 at ¶ 11. Mr. Geyer explained that “[t]he long co-extensive period of use of thermal eradication and air filtering (e.g., during asbestos remediation efforts), without any adaptation of air filtering to thermal eradication, shows that the use of air filtering in conjunction with thermal eradication was not obvious.” *Id.* In view of this

evidence, and the lack of any evidence to the contrary, the rejections of independent Claims 18, 20 and 26 over Forbes in view of Brenner, should be withdrawn. Further, the rejections of Claims 19, 21-23, 27-30, 36-40 and 42-55, which depend from the foregoing independent claims, should also be withdrawn.

In the Answer, the Examiner also stated that “[i]t would have been obvious ... to provide Forbes with a filter screen as shown by Montellano for the purpose of collecting dead insects to assess the effectiveness of the system.” Answer at p. 6. The Applicants respectfully disagree.

The steps of “filtering said heated gas ... to capture suspended remains of said toxic organisms” and “exhausting said heated gas from said enclosed structure ... wherein the suspended particulates are substantially removed from said heated gas before exhaustion from said enclosure” are not disclosed in Montellano. Montellano provides a vacuum cleaner that includes a filter. See, e.g., Fig. 1. While Montellano states that the vacuum cleaner can be used capture live insects (see, e.g., col. 1, ll. 1-8), it is not used to capture “suspended remains of toxic organisms,” and it certainly does not exhaust heated gas from an enclosure “wherein the suspended particulates are substantially removed from said heated gas before exhaustion from said enclosure.” See Claim 26.

The vacuum cleaner in Montellano is used to capture live insects, not dead insects. Thus, the vacuum cleaner is not being used to capture “suspended remains of said toxic organisms.” Further, while the vacuum cleaner includes a filter, the filtered air is not being exhausted “from said enclosed structure.” See Claim 26. Instead, it is being exhausted back into the enclosed structure.¹

While such a distinction may seem minor, it is actually quite important. As discussed above, a vacuum cleaner (like the one disclosed in Montellano) is configured to (1) capture particulates, including live insects, and (2) exhaust air back into the structure (or the immediate environment). Thus, the air must be filtered, or the live

¹ While Montellano is vague on its exhaust, it does state that the filter “acts to purify air” (see col. 1, ll. 53-61), which implies that the air is being exhausted back into the enclosed structure.

insects would simply be blown back into the room from which they were taken. In the invention, however, live insects are not being captured, and air (or heated gas) is not being exhausted back into the enclosed structure. Instead, the heated gas is being exhausted "from said enclosed structure," or outside of the enclosed structure. Thus, there is no obvious need to filter the air before it is exhausted.

This is supported by the Declarations of Michael Linford, Larry Chase, and Sean Abbott. See Appeal Brief, Appendix D, Exhibits 2-4. Dr. Linford testified that "it would not have been obvious to combine a process for removing and capturing flying insects from a structure, as disclosed in Montellano, with a process for heating a structure to kill boring or crawling insects, as disclosed in Forbes." Appeal Brief, Appendix D, Exhibit 2 at ¶ 2. Dr. Linford further testified that "[a]lthough many skilled professionals were aware of the Forbes method since 1989, none recognized the benefits of filtering the treatment of air as disclosed by the present application. None recognized that the forced circulation of heated air in the Forbes Method caused a large amount of allergenic or otherwise harmful particulate matter to become airborne, and that such particulates may be removed from the environment using a filtering process as taught by the invention." *Id.* at ¶ 8.

Mr. Chase, Vice President of Sales and Marketing for Precision Environmental, Inc., testified as to the commercial success of the invention, which "relates the combination of heated eradication and air filtration, which specifically and uniquely solves the problem of airborne contaminants, and is cost-effective, yielding better results and higher success rates." Appeal Brief, Appendix D, Exhibit 3 at ¶ 4.

Mr. Abbott, President of Natural Link Mold Lab, testified as to a long-felt need for "methods to treat contaminated buildings and deal with the increased aerosol particulate mater found in remediated buildings." Appeal Brief, Appendix D, Exhibit 4 at ¶ 6. Mr. Abbott further described several articles, evidencing the long-felt need (see *id.* at ¶¶ 7-14), and testified that the claimed invention "addresses this long-felt need by effectively killing organisms in enclosures, eliminating substantially all such organisms, in a manner that is non-toxic, and can be performed in a relative short time, is clean, dry and

odorless, and removes a large proportion of the dead organisms.” *Id.* at ¶ 15.

The Examiner summarily dismissed these declarations. As to the Declaration of Mr. Abbott, the Examiner stated that “the objective evidence of nonobviousness is not commensurate in scope with the claims.” Answer a p. 9. Such a bald statement, however, is insufficient to support an obviousness rejection. See, e.g., MPEP § 716.01 (providing that “[g]eneral statements such as ... ‘the evidence is not commensurate with the scope of the claims’ without an explanation supporting the findings are insufficient.”). As to Mr. Linford, the Examiner stated that “there is no evidence that if persons skilled in the art who were presumably working on the problem knew of the teachings of the above cited references; they would still be unable to solve the problem.” Answer at p. 8. Mr. Linford testified, however, that “many skilled professionals were aware of the Forbes method since 1989” (see Appeal Brief, Appendix D, Exhibit 2 at ¶ 8), and certainly those professionals were also aware of vacuum cleaner technology (as disclosed in Montellano). As Mr. Linford stated, those skilled in the art did not recognize the benefits of filtering the heated gas, as disclosed by the present invention. *Id.* He further stated that “[n]one recognized that the forced circulation of heated air in the Forbes Method causes a large amount of allergenic or otherwise harmful particulate matter to become airborne, and that such particulates may be removed from the environment using a filtering process as taught by the invention.” *Id.*


Given the evidence of nonobviousness, and the lack of evidence to the contrary, the rejections of Claims 18, 20 and 26 over Forbes in view of Montellano should be withdrawn. Further, the rejections of Claims 19, 21-23, 27-30, 36-40 and 42-55, which depend from the foregoing independent claims, should also be withdrawn.

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Respectfully submitted,

Date: August 25, 2010



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